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Environment, Nature Conservation,
Building and Nuclear Safety



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Green Building 绿色建筑特刊

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Foreword

The Secretary-General of the United Nations Ban Ki-moon once said: “The battle for sustainability will be won or lost in cities.” The German federal government and its local authorities have the opportunity and the obligation to contribute to winning this battle.

The climate protection goals in Germany and world-wide can only be realised with the support and dedication of the cities and provinces in our countries. With more than 50% of the global population living in cities today and growing urbanisation rates, sustainable urbanisation plays a key role in shaping our future. Cities are not only major contributors to climate change; they are also heavily vulnerable to the impact of climate change. Although cities cover less than 2% of the earth's surface, they consume 78% of the world's energy and produce almost 70% of all energy related GHG emissions. At the same time, hundreds of millions of people in urban areas across the world will be affected by rising sea levels, increased occurrences of heavy rain and floods, and periods of extreme heat and cold.

In order for cities to be successful climate actors, energy efficiency and renewable energy must be considered as two of the main pillars of sustainable urbanisation and emission reduction. A great number of cities worldwide have already shown leadership in setting targets and implementing plans to cut their greenhouse gas emissions. Several German cities - the so-called “Masterplan Communities” - are already preparing strategies and concepts to reduce their GHG emissions by 95% and to cut their energy consumption by 50% until 2050. Enhancing energy efficiency in industry and buildings as well as using local renewable energy sources play a major role in achieving these goals.

The German government is also setting an example in the building sector: From 2021 onwards, all new buildings in Germany must be nearly zero-energy buildings with a very low energy demand covered mainly from renewable sources. Public buildings have to fulfil this new standard already two years earlier.

Also, cities can reduce their emissions while simultaneously addressing other pressing local environmental problems such as air pollution and waste manage-



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联合国秘书长潘基文曾说过：“可持续发展的战役成败在城市”。德国联邦政府和地方政府有机会和责任为打赢这场战役做贡献。

德国以及世界达到环境保护的目标只有在我们居住国家城镇和省市的支持与贡献下才能实现。当今世界，全球超过50%的人口居住在城市，城镇化率日益增高，因此可持续的城镇化发展对我们的未来至关重要。城市不仅仅是气候变化主要的贡献者，而且也极易受气候变化的影响。虽然，城市在地球表面的覆盖率不超过2%，但却消耗着世界上78%的能源，产生了超过70%与能源相关的温室气体排放。与此同时，全球成千上万居住在城镇的人会受到海平面上升、暴雨洪水频发以及极热与极寒天气的影响。

为了使城市成为抗击气候变化的贡献者，节能与新能源必须作为可持续的城镇化发展以及减排的两个主要支柱来考虑。全球许多城市已经在温室气体减排的目标设定与计划执行方面做出了表率。一些德国城市，即“总体规划社区”，已经开始制定减排的策略和概念，计划到2050年温室气体排放降低95%，能源消耗降低50%。提高工业以及建筑节能效率，使用当地可再生能源是实现这些目标的关键。

德国政府也在建筑领域树立了榜样：从2021年起，德国所有的新建建筑必须接近零耗能，所需的极少能源基本用可再生能源覆盖掉。公共建筑已经在两年前达到了这一新标准。

而且，城市可以在减少排放的同时解决其他紧迫的环境问题，比如空气污染和废物处理。减排对环境和市

ment. Emission reduction is both beneficial for the environment and health of the citizens. Furthermore, there is growing recognition that ambitious climate action comes with various financial benefits for the cities: for example by creating sustainable economic success. Whether in energy, buildings or transport: climate action measures spur innovation, strengthen competitiveness and create jobs. They create multiple win-win situations.

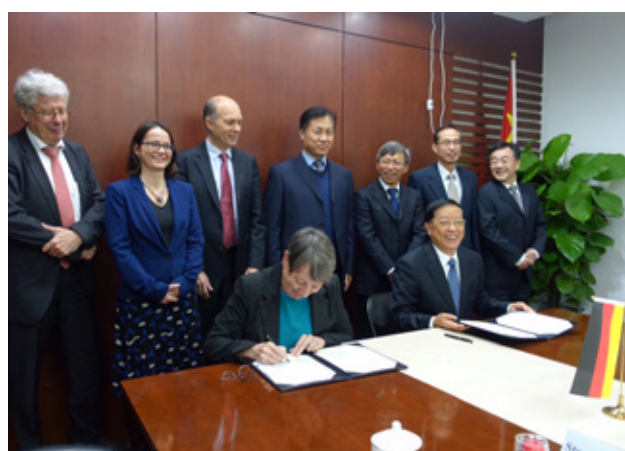
However, for successful climate action, cities need to be equipped with decision making powers, capabilities and knowledge as well as access to finance. Local authorities have various roles through which they can enhance climate-friendly and energy-smart local development. As consumers of resources, especially energy, they can act as role models for all stakeholders. Through planning and regulation they can influence climate friendly and sustainable behaviour of business and households.

For special climate protection projects, especially in the energy sector, the German government is also offering financial support to cities through its National Climate Initiative. An outstanding role is also played by the many dedicated climate protection managers who are active in German cities. They promote the importance of climate action locally and convince stakeholders and decision-makers with strong arguments why climate is important for the development of their region. They also create the space for open and transparent dialogues between politicians, public institutions and citizens.

Furthermore, in the context of the Sino-German Urbanisation Partnership, we make climate protection a priority – in particular through the promotion of renewable energy and energy efficiency in cities. Together with China we want to address the various challenges of urbanisation in China and Germany and find solutions to enhance the quality of life in our cities. This is not only of interest for China and Germany, but can set an example for countries around the globe to support cities in combating climate change and choosing a real sustainable development track. In the end, a better planned city with a compact but green intelligently designed and climate friendly structure, mixed-use neighbourhoods, greener buildings, better public transport and sustainable waste management can reduce a city's carbon footprint significantly while at the same time providing a better quality of life for its inhabitants.

民的健康都大有益处。此外,人们也越来越多地认识到治理气候可以给城市带来颇丰的经济效益:比如通过建立可持续发展的经济。不论是在能源、建筑还是交通领域,应对气候变化可以刺激创新、增强竞争力以及增加就业岗位,创造多个互利共赢的局面。

然而,为了成功治理气候,城市需要具备决策权以及融资的能力和知识。当地政府在推进气候友好和节能智能型发展方面扮演着不同的角色。作为资源的消费者,尤其是能源的消费者,当地政府可以为利益相关者做出榜样。通过规划和管理,他们可以影响企业利益相关方环保和可持续发展行为。



Germany's environment minister Barbara Hendricks and China's building minister Chen Zhenggao signed a joint declaration on the Sino-German Urbanisation Partnership in November 2015
 2015年11月德国环境部长Barbara Hendricks和中国住建部部长陈政高签署了关于落实中德城镇化伙伴关系合作谅解备忘录
 Source / 图片来源: BMUB / Inga Wagner

对于那些特殊的治理气候项目,尤其在能源领域,德国政府也通过国家气候倡议为城市提供财政支持。活跃在德国城市的气候治理专家也做出了极大贡献。他们致力于当地气候治理的推广工作,并努力说服利益相关者和决策者气候对这些地区的发展至关重要。他们还还为政治家、公众机构以及市民创造公开透明的对话空间。

此外,在中德城镇化伙伴的大背景下,我们把应对气候变化作为优先发展项目——尤其是新能源的推广和建筑节能。与中国携手,我们解决中德城镇化的各种挑战,并为我们提高城市生活质量寻找解决方案。这不仅仅符合中德两国利益,并且为全球各国在应对气候变化和选择可持续发展道路方面树立了榜样。最终,设计紧凑、绿色智能、节能环保、以及拥有便利的交通、多功能的小区 and 可持续性废物管理的城市可以很大程度上减少城市的碳足迹,同时为居住者提供更好的生活质量。

Green Building

Developments and Opportunities in the Chinese Green Building Market 中国绿色建筑市场的发展和机会

China has experienced an immense urbanisation process in the previous decades: During the last 30 years, 260 million people moved from the countryside to the cities and another 150 million are expected to migrate to urban centres in the coming 15 years. Thus, the projected urban population in the Middle Kingdom will reach a share of approximately 60 percent until 2020 and 70 percent by the year 2030. As the urbanisation process leads to rising energy and resource consumption, every second newly constructed building should be built in line with green building standards until 2020, according to the Chinese government.

To further encourage sustainable building and energy efficiency, the government has already developed green building standards and codes, as well as plans to refurbish 120 million square meters of public buildings. Hence, the overall demand for energy efficient investment is expected to be approximately 1.5 billion CNY between 2015 and 2020.

The necessity to invest in green and energy efficient buildings is underlined by a recent study of the Chinese Academy of Sciences and the consulting firm Accenture. The consortium investigated energy efficiency and environmental compatibility of China's major cities. While Shenzhen is ranked number one, Beijing and Shanghai did not reach the top 15. The ranking is based on a system of indicators that combine among others water and energy consumption per gross domestic product as well as concentration of particulate matter 2.5 (PM2.5) in

在过去的几十年里中国经历了迅猛的城市化进程：过去的30年里有2亿6千万人口从农村迁往城市，预计在未来的15年中还会有1亿5千万人口迁移到城市中心。因此据预测中国的城镇化率将在2020年达到60%，并在2030年达到70%。同时城市化进程也导致能源和资源消耗的增加，中国政府宣布，到2020年50%新建的建筑都要符合绿色建筑标准。

为进一步鼓励发展可持续建筑和提高能效，政府已经建立了绿色建筑标准和规范，同时计划节能改造1亿2千万平方米公共建筑。因此从2015年到2020年能效方面的总投资需求预计将达到15亿元。中科院和埃森哲咨询公司最近的一项研究强调，投资绿色节能建筑是很有必要的。他们联合调查了中国主要城市的能源效率和环境相容性。深圳排名第一，北京和上海没有进入前五名。排名基于一系列指标，尤其是结合了单位GDP耗水和耗能，以及空气中的PM2.5密度。根据这份研究，过去两年北京的环境状况有所退步。调查还显示了关于上海在能效等方面的存积需求。总的来说，专家们建议加强应用合适的技术，来进一步节能减排。



The Chinese government has developed green building standards and plans to refurbish 120 million square meters of public buildings

中国政府建立了绿色建筑标准，计划节能改造1亿2千万平方米公共建筑

Source / 图片来源: gaoloumi.com

the air. In Beijing the environmental status has been on the decline in the last two years, according to the study. Concerning Shanghai, the investigation unveils a backlog demand for instance in the field of energy efficiency. In conclusion, the experts recommend the increased application of suitable technologies to enhance energy savings and reduce the emission of pollutants.

Targeting the heating sector, Beijing for instance, has already begun to intensify its activities to reduce energy consumption and improve air quality by phasing out small coal stoves in private houses and business buildings. Last year, the municipal administration of the capital abolished coal stoves in two inner city districts and until 2017 coal-fired heating will be substituted by more energy efficient and greener technologies in six central districts. To further enhance the air quality and reduce emissions this measure will be extended to Beijing's total area until 2020.

In the heavy polluted city of Shijiazhuang, the capital of the Beijing-surrounding Hebei province, efforts to reduce resource consumption are also being strengthened. The local Bureau of Housing and Urban-Rural Development recently released a notification stating that the installation of solar water heating systems is mandatory from 2016 in all newly constructed residential buildings and those consuming large amounts of warm water, such as schools or hospitals. In addition, the local government actively encourages low-energy buildings and passive houses. By the end of 2016, passive building projects will have been initiated in four inner city districts, Shijiazhuang Hi-Tech Industrial Development Zone and Zhengding new district. Moreover, according to the city government, building insulation and the 75 percent building energy efficiency standard should be actively promoted. Thus, buildings that conform to higher standards are heavily encouraged and new buildings in the city centre should at least comply with the Chinese one-star-standard. Furthermore, new buildings should apply non-traditional ways of gaining water and new projects should consider using rainwater recycling technologies.

However, not only the northern cities of Shijiazhuang and Beijing are publishing plans and implementing more ambitious measures for energy efficiency and reduced resource consumption. The regional 13th Five-Year Plan of the eastern Chinese Jiangsu province for instance also determines that between 2016 and 2020 all new buildings should be constructed according to the Chinese green building standard.

例如针对供暖行业,北京已开始加大力度,为减少能耗及改善空气质量淘汰私人住宅和商业建筑中的小煤炉。去年首都市政府在两个中心城区禁止使用煤炉,到2017年在城六区用绿色清洁能源代替燃煤取暖。为进一步改善空气质量和减少排放,到2020年北京全市平原地区所有村庄都将实现煤改清洁能源。

重污染的河北省省会石家庄市也加强了降低能耗的工作。当地住建局近期发布了关于加强建筑节能工作的通知,自2016年起全市范围内所有新建居住建筑和实行热水集中供应的医院、学校等热水消耗大户,必须采用太阳能热水系统与建筑一体化技术。当地政府鼓励建设单位和开发商建设超低能耗被动式建筑。2016年底前市内四区、高新区及正定新区都要安排启动被动式节能建筑。此外,该通知还要求大力推广建筑保温与结构一体化技术和全面执行建筑节能75%标准的强制力,鼓励建筑物按照高于现行节能标准进行建设。主城区内的新建建筑均要按不低于一星级绿色建筑标准设计、建设。鼓励采用非传统水源应用技术,新建项目必须考虑雨水回收利用。



Shijiazhuang - installation of solar water heating systems is mandatory in all newly constructed residential buildings as of 2016

石家庄 — 自2016年起全市所有新建居住建筑必须采用太阳能热水系统
Source / 图片来源: sjzhy.net

然而不仅是石家庄和北京这样的北方城市出台了相关政策,执行更强有力的提高能效降低能耗的措施。例如江苏省的“十三五”规划提出,2016到2020期间江苏所有新建建筑必须全部采用国家绿色建筑设计标准。

福建厦门也强调了可持续性建筑的重要性。厦门政府计划在“十三五”期间新建绿色建筑1000万平方米,

Sustainable building is also emphasised in Xiamen, a major city in the south-eastern Fujian province. The local administration plans to build 10 million square meters of newly constructed green buildings between 2016 and 2020. In the same period 600,000 square meters of public buildings should be refurbished according to energy efficient characteristics per year, while the regional plan of Fujian province intends to increase the production value of energy-saving doors and windows to 44 billion CNY.

Comparable with the targets and measures on the municipal and provincial level, the Central Committee of the Communist Party of China and the State Council are planning to restrict the expansion of cities nationwide. The "Roadmap to Build Better Cities" defines limits to prevent that Chinese cities grow beyond their natural resources. Urban development should consider environmental protection and energy conservation through energy efficient construction, clean energy supply and renovation of rundown areas.

In line with these efforts, energy efficiency and the intensified deployment of sustainable energy are anticipated to represent important pillars of the new 13th Five-Year Plan (2016-2020), which is published in March. The plan is expected to form a framework for innovation, coordination, green development, opening up and sharing and aims to ensure a higher living standard as well as a higher quality of life and environment. Thus, ambitious measures and targets in the areas of sustainable energy generation, efficient energy use and subsidies for green building are expected.

The described plans and measures on the local, provincial and national level further accelerate the development of the Chinese green building sector and offer a promising market for German solution providers. Especially technologies and products for energy saving as well as renovation of existing buildings are increasingly requested and supported in Chinese cities.

In particular, the measures to reduce resource consumption and more stringent heating sector-policies provide growing opportunities for German solutions for equipping buildings with new boilers, energy-saving doors and windows, building insulation, as well as specific technologies for solar and geothermal heating and rainwater recycling. In addition, pilot projects for low-energy and passive houses can provide a promising starting position for German companies, as they offer a platform to showcase new technologies.

同时每年完成公共建筑节能改造60万平方米,福建省住房和城乡建设厅提出,在“十三五”期间新增节能系统门窗产值440亿元。



Promising opportunities for energy efficient building technologies and services tailored to the Chinese market

适合中国市场的节能建筑技术和服务前景广阔

Source / 图片来源: xtol.cn

与省市层面的目标和措施相对应地,中共中央国务院颁布的关于进一步加强城市规划建设管理工作的若干意见提出要加强空间开发管制,划定城市开发边界,根据资源禀赋和环境承载能力,引导调控城市规模,优化城市空间布局和形态功能,确定城市建设约束性指标。

本着这些理念,能源效率和大力发展可持续能源预计会是3月份正式发布的“十三五”规划(2016-2020)的重要关键点。“十三五”计划将贯彻落实创新、协调、绿色、开放、共享的发展理念,达到人民生活水平 and 质量普遍提高、生态环境质量总体改善等目标。因此在可持续能源开发、能源高效利用和绿色建筑补贴等方面预计会有宏伟目标和有力措施。

国家、省市和地方层面发布的计划和措施进一步加快中国绿色建筑业的发展,同时为德国的方案提供者提供了很有前景的市场。尤其是中国城市的节能技术和产品以及现存建筑的节能改造需求日益增长。

特别是中国政府减少能耗的措施和更严格的供暖政策为德国建筑节能方案提供了越来越多的机会,如新型锅炉、节能门窗、隔热保温、太阳能、地热采暖和雨水回收等技术。另外,低能耗被动房屋试点项目作为一个展示新技术的平台为德国企业提供了良好开端。

Eco-Cities in China for Energy Efficient Urban Development

A contribution by Susanne Schmelcher, Deutsche Energie-Agentur (dena)

致力于高效城镇发展的中国生态城市

来自德国能源署的Susanne Schmelcher的客邀文章

China's urban population reached 770 million at the end of 2015. This, however, is still a lower level of urbanisation than OECD countries. But in absolute terms, the Middle Kingdom represents the largest urbanised nation ever in human history. Furthermore, the United Nations predicts an increase of 394 million new urban residents within the next 40 years.

By reshaping China's geographical and socio-economic landscape, this urbanisation process inherits challenges as well as opportunities. Major challenges are the increase in energy demand leading to a rise in CO₂ emissions, notably accelerating climate change. Opportunities are represented by the possibility to avoid infrastructure which creates major carbon lock-ins for the coming decades.

Urban agglomerations are imbedded in a path-dependent process – if we do not take the chance now, we will miss an opportunity in the long term. This calls for sustainable management strategies – of which urban administration has to be at the core. In this regard, the future role of municipalities will be significant.

With the aim of increasing energy efficiency of buildings in China, the German Energy Agency (dena) has been working jointly with the Chinese Ministry of Housing and Urban Rural Development (MoHURD) since 2006 in the Sino-German working group for promoting energy efficient buildings in China.

The joint activities aim to firmly establish know-how through initiating and monitoring pilot projects, specialist publications and events. In this framework dena's experiences in Germany are being adapted to regional conditions and local needs.

截至2015年底,中国的城镇人口数量已达7.7亿。然而,与经合组织成员国相比,中国的城镇化率仍相对较低。中国城镇人口规模的绝对值是人类历史上前所未有的。联合国预测未来40年中国仍将新增3.94亿城镇人口。

城镇化进程在引发中国地域、经济和社会变革的同时,也为中国社会带来巨大挑战和机遇。其中最大的挑战在于,日益增长的能源需求造成更多的二氧化碳排放,从而加剧气候变化。

城镇化带来的机遇主要在于通过合理的城镇规划可有效减少基础设施建设的高碳锁定效应。城市群的发展具有明显的路径依赖特征——如果现在不把握正确发展方向,将错失未来长远的机遇。这就需要以城市管理为核心的可持续管理战略。城市在未来的角色至关重要。自2006年以来,德国能源署(dena)一直致力于与中德政府和企业的合作,提升中国的建筑能效。德国能源署和中国住房和城乡建设部在“德中促进中国建筑节能工作小组”框架下,在中国发起并实施示范项目。通过监督示范项目实施、创办专业刊物、举办专业活动,促进先进技术的引进和推广。德国能源署在德国高效建筑领域的实施经验与中国不同地域的气候特点及需求得以有机地结合。



Memorandum of Understanding signed between dena, CSUS and the pilot cities of the eco-city project in 2015
2015年德国能源署、中国城市科学研究会以及中国相关试点城市联合签署生态城市项目谅解备忘录

Source / 图片来源: dena



Roadshow in China on energy efficient buildings and urban development in 2015
2015年在中国举办以高效节能建筑和城市发展为主题的城市路演
Source / 图片来源: dena

Since 2012, dena has widened its agenda from solely buildings to encompass the urban scale in order to tackle energy efficiency within the entire city environment. In conjunction with local Chinese experts, capacities in municipal administrations for sustainable and climate protecting governance are enhanced to contribute to the reduction in CO₂ emissions. The efforts focus on the following subjects:

- capacity building and technical training,
- implementing best practice projects on an urban scale,
- encouraging exchanges between mayors and experts from Chinese and German cities, and
- improving investment framework conditions for efficiency technologies.

dena has been a working group member of the Sino-German Urbanisation Partnership led by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and MoHURD since 2015.

In cooperation with the Chinese Society for Urban Studies (CSUS/MoHURD), dena is implementing an "Energy and Climate Protection Management Sys-

2012年,德国能源署在中国的工作重点由建筑能效扩展到高效、低碳城市,即提升城市范围内含建筑在内的系统能效。通过与中国专业人士合作,增进城镇管理层可持续及气候保护治理能力,促进碳减排。主要工作包括:

- 相关人员能力建设及技术培训,
- 在试点城市实施最佳实践项目,
- 推动中德城市市长及专业人士交流,
- 改善高效节能技术的市场投资环境。

2015年,德国能源署加入了由德国联邦环境、自然保护、建设与核安全部以及中国住建部联合领导的中德城市化合作伙伴联合工作组。

德国能源署与中国城市科学研究会合作,在中国13个试点城市(如张家口市、江油市、吉林市等)推行“能源与气候保护管理系统”,核心目标为提高试点城市的综合能效。能源与气候保护管理系统的框架由德国能源署开发,已在德国试点城市得以应用,旨在提升、优化城市规划环节的整体效率,协助城市开发可行性高、融资能力强的项目,并为项目实施过程提供监督及质量保证支持。能源与气候保护管理系统共包括六个步骤。在中国试点城市的工作目前处在第

tem" (ECM) in 13 Chinese pilot cities (Zhangjiakou, Jiangyou, Jilin, among others). The project aims to increase energy efficiency within the operating range of municipalities. The framework of ECM was developed by dena and has been implemented in German cities targeting a holistic accompaniment and optimisation of the planning processes, assistance in designing feasible and bankable projects as well as support with monitoring and quality assurance of project implementation.

ECM is organised as a cyclic process, divided into six steps. Starting with an adaption and creation of energy management structures within municipalities, it further develops an overall principle defining measurable emission reduction goals. To design measures that can achieve those goals, an extensive analysis of the initial situation is conducted.

The resulting operative goals and actions will lead to the implementation of high-efficiency pilot projects in the relevant areas of energy efficient building constructions, secure and efficient energy supply (incl. implementation of renewable energies and "smart systems"), solutions for energy efficient mobility and resource saving infrastructure for waste and water.

The pilot cities are currently implementing the first step of adaption and creating an energy management structure within its municipalities supported by dena and CSUS. To facilitate planning and realisation of the next steps, the partners conducted a number of intensive workshop sessions in collaboration with the pilot city governments at the end of 2015. A second series will follow at the beginning of April 2016.

Other activities to date within the framework of cooperation include delegation visits from Chinese mayors in Germany, participation in a project-delegation at the BMUB conference „Sustainable Urban China“ and a joint promotional project-roadshow. All these activities also aim to support German companies entering the Chinese market. Project partners include for instance Wilo, Wacker and TÜV Rheinland.

The Sino-German cooperation project is based on an agreement between MoHURD and BMUB. The project's patrons are Dr. Barbara Hendricks, the German Federal Construction Minister, and Chen Zhenggao, the Chinese Construction Minister.

一步,即建立城镇能源管理框架。在此基础上,设计总体原则,确定可评测的减排目标,进行详细的现状分析,以便确定实现目标所需的措施,落实高能效示范项目。项目涵盖高能效建筑、安全及高效能源供应(可再生能源应用及智能能源系统)、高能效交通、垃圾处理及水资源高效利用等相关领域。

目前,在德国能源署和中国城科会的协助下,试点城市正在积极建立城市能源管理框架。为推进试点城市能源管理系统工作深入开展,德国能源署和城科会已于2015年年底在部分试点城市举办了内容翔实的研讨会,并将在2016年4月初继续开展相关研讨会。

在中德合作框架下,德国能源署还开展了一系列其他活动,包括接待中国市长代表团访德,作为项目代表参加德国建设部组织的“中国可持续城市”会议、组织并实施城镇能效主题路演等。这些活动也为德国企业进入及拓展中国市场提供支持。项目合作伙伴企业包括威乐、瓦克以及德国莱茵TÜV等。



Workshop in the pilot city of Jiangyou in December 2015 with the Head of the City Planning Administration Bureau Mr. Pi and Christian Stolte, Head of the Energy Efficient Building Division of dena
2015年12月江油市住建局领导皮先生和德国能源署建筑能效部领导Christian Stolte先生出席了在该试点城市举办的研讨会
Source / 图片来源: dena

“中德低碳生态城市”示范项目是中国住建部和德国联邦建设部之间的合作项目。德国联邦建设部部长芭拉·亨德里克斯博士(Dr. Barbara Hendricks)为项目德方的指导委员会主席,中方的主席由中国住房城乡建设部长陈政高先生担任。

Sustainable Support for German Building Expertise in China

德国建筑节能经验在中国发展的长期支持

China's economic growth, industrial development and ambitious urbanisation plans in recent decades have led to an enormous increase in energy demand. The country has already shown improvements in terms of reduced energy intensity (roughly by 70% per unit of GDP between 1980 and 2010). With cutting the intensity by another 19.7 percent per unit of GDP during the period of the 12th Five-Year Plan (2011-2015), China was able to exceed its defined goals by 4 percent.

However, despite these efforts the total energy consumption of the Middle Kingdom has doubled within the past ten years. As a result energy efficiency and the intensified deployment of sustainable energy are anticipated to represent important pillars of the new 13th Five-Year Plan (2016-2020). The government is among other activities setting a strong focus on efficiency measures in the building and construction industry. Being responsible for roughly one third of primary energy demand, the Chinese building sector offers great potential for reducing energy consumption. Annually 1 to 1.5 billion square meters of living space are added, whereof one square meter still requires four times more energy for heating and cooling than the European average.

In order to further reduce resource consumption, green buildings, low-energy projects and the integration of renewable energy sources in buildings are supposed to be increased in the coming years and existing residential and industrial buildings are expected to be refurbished. As Germany enjoys a stellar reputation throughout the world for its high-quality technical products and practical expertise, particularly in the field of green building and energy efficiency, this provides promising market opportunities for sustainable building technologies and services in China.

German small and medium-sized enterprises (SMEs) offer innovative and smart energy efficient solutions to a variety of issues but are still facing many barriers when it comes to capturing foreign markets such as China. In 2007, in

中国的经济增长,工业发展和城市化的宏大计划带来最近几十年对能源需求的大幅增加。

中国在提高能效方面已有显著的进展(单位国内生产总值的能耗从1980年至2010年间已减少了近70%)。十二五期间(2011-2015)中国单位国内生产总值的能耗减少19.7%,超过预计目标近4%。

尽管如此,中国在过去十年的能源消耗总量翻了一番。因此,节能和可再生能源的集中部署有望成为十三五规划(2016-2020)的重要支柱。

政府已经将工作重点转到住房和建筑业的能效提高措施上。作为占用国家约三分之一的全社会一次性能耗的建筑业也的确具有巨大的减少能源消耗的潜力。每年中国的居住面积都会增加十到十五亿平方米,而每平方米供暖和制冷的能耗是欧洲平均水平的四倍。

为了进一步减少资源的消耗,绿色建筑,低能耗项目以及在住房中运用可再生能源会在未来几年增加,而已建成的居住建筑和工业建筑也会有更多翻修的需求。

德国凭借全球著称的高质量技术产品和实践经验,特



1 to 1.5 billion square meters of living space are added annually in China
每年中国的居住面积都会增加十到十五亿平方米
Source / 图片来源: nipic.com

order to improve the market and sales potential and support for German products, services and technologies as well as promote global exchange in the field of energy efficiency, the German Federal Ministry for Economic Affairs and Energy (BMWi) launched the Energy Efficiency Export Initiative. The programme fundamentally focuses on all relevant foreign markets but special emphasis is placed on countries such as China with high economic growth and an industrial market with strategic importance for the export sector as well as a vast growing building sector. Since its very beginning, German Industry and Commerce (GIC) Greater China has been a reliable partner of the initiative and highly involved in organizing several activities regarding energy efficiency in China on behalf of the BMWi.

At the beginning of 2016 the Energy Efficiency Export Initiative has been merged with the Renewable Energies Export Initiative, another successful programme of the BMWi, to achieve synergy effects. As a result the activities of the GIC Greater China in the fields of renewable energies and energy efficiency supported by the BMWi are now implemented within the framework of the newly launched Energy Export Initiative.

In an effort to build on actions of past years and increase the sustainability of measures, there is a series of activities implemented by GIC Greater China related to building energy efficiency in 2016:

- GIC Greater China is organising a business trip on energy efficiency in buildings for German companies to Shanghai in May. As part of the trade mission, participating enterprises will be able to present their technologies and solutions in the field of green building to decision makers and stakeholders at a one-day symposium. Individual business-to-business matchmakings and company visits represent another integral part of the trip. Prior to the trade mission, participating German companies get free access to relevant data by receiving a comprehensive target market analysis on the topic of energy efficiency in buildings. The study includes economic and

别是在绿色建筑和能效领域, 可以为中国提供出色的可持续性建筑技术和相应完善的服务。

德国中小型企业可以提供多种创新和智能的节能解决方案, 但是就其在国外, 尤其是中国的市场比重而言, 他们还面临着很多问题和挑战。2007年, 为了提高德国产品, 服务和技术市场以及销售潜力, 同时也为了促进能效领域的国际性交流, 德国联邦经济和能源部 (BMWi) 发起了能源效率出口倡议。

这个政府项目侧重海外市场, 而且特别面向中国这样具有高经济增长以及对于德国出口具有战略重要性的工业市场。自这个项目成立之初, 德国商会 (GIC) 大中华区就已经是这个政府项目的合作伙伴, 并代表德国经济部在中国举办过多次与能效有关的高级别项目和活动。

2016年初, 能源效益出口倡议与德国联邦经济和能源部的另一个杰出项目可再生能源出口倡议合并, 以实现协同效益。因此, 德国商会大中华地区由德国联邦经济和能源部支持的新能源和能效项目今后都将在新的能源出口倡议的框架下进行。

基于德国商会多年来的政府项目的经验积累以及未来提高这些项目的可持续性, 德国商会将在2016年举办一系列建筑能效为主题的活动:

- 5月份, 德国商会大中华地区将组织德国企业代表团, 考察上海的建筑节能效率。作为考察任务的一部分, 企业可以在为期一天的研讨会上向决策者们展示其在绿色建筑方面的先进技术和解决方案。个性化的B2B对接以及公司拜访也是此次行



The Energy Export Initiative provides a useful platform for Sino-German exchange and cooperation in the building sector

能源出口倡议提供了一个中德建筑领域交流合作的有效平台



Sino-German Forum on Building Energy Efficiency held in 2015
2015年中德建筑能效论坛

legal frameworks, relevant market players as well as the current implementation state-of-play on the subject of green building in China. The target market analysis has already been introduced at an information event in mid-March in the German city of Cologne.

- Utilizing renewable energies represents an essential element for energy efficient buildings. Especially the application of geothermal energy has experienced a dynamic development in the past years in China, as the share of living and office space supplied with geothermal energy increased tenfold between 2007 and 2012. Compared to other energy sources, the Middle Kingdom depends more on international know-how and support in the field of geothermal energy. In this context, GIC Greater China is organising a second business trip at the end of September to the cities of Shanghai, Shenyang and Qingdao. Similar to the first trip in May, German participants will be able to present their technologies and solutions to local decision makers and stakeholders at organised business-to-business matchmakings, company visits and a symposium. In preparation for the business trip, participating German companies will receive a target market analysis on the topic of geothermal energy and building energy efficiency in China.

程的一部分。考察之前,德国企业可以免费获得建筑节能领域目标市场详尽的分析数据报告。报告的内容涵盖经济和法律框架,重要市场参与者以及中国绿色建筑现行状况分析。目标市场研究报告已经在三月中旬在德国科隆举行的研讨会上做过介绍。

- 利用可再生能源是绿色节能建筑的一个关键要素。尤其是地热能过去几年在中国的发展突飞猛进 — 2007年到2012年使用地热能的住房和写字楼的比例增长了十倍。与其他能源相比,中国更需要在地热能领域寻求国际技术和支持。在这个背景下,德国商会大中华地区在9月底计划组织第二个代表团,访问和考察上海、沈阳和青岛。与5月份的代表团相似,德国与会人员将有机会在B2B对接会议、公司拜访以及研讨会上,向当地决策者展示先进的技术和解决方案。为方便筹划此次访问,德国企业也会获得有关中国地热能与建筑能效的目标市场分析报告。
- 除此以外,德国商会大中华地区将在11月份组织代表团,在德国进行为期一周的实地考察。届时,中国高层政府、商务以及管理层通过参观示范项目与领先机构,将有机会获得德国建筑节能解决方案的实际经验和第一手信息。此行将提供独一

- Moreover, GIC Greater China is organising a one-week fact-finding mission in November to Germany. Thanks to the trip, Chinese high-ranking representatives from politics, business, science and administration get the chance to gain practical experience and understanding of German building energy efficiency solutions at first hand, by visiting best-practice projects and leading organisations in Germany in this field. The trip also provides an opportunity to exchange information and develop contacts with experts, decision makers and potential suppliers.

For implementing the described programme of activities, GIC Greater China works together with the three assigned consultants German Asia-Pacific Business Association (OAV), eclareon and Baden-Württemberg International (bw-i) in Germany. Furthermore GIC Greater China relies on synergies and close cooperation with other important players such as Deutsche Energie-Agentur (dena) or Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) which also accompanies the Sino-German Energy Dialogue and is responsible for implementing its measures.

The target market analyses, the two business trips to China and the fact-finding mission to Germany all bring together relevant stakeholders and offer comprehensive information about the building sector in terms of opportunities for energy efficient solutions for the Chinese market.

A technological emphasis is placed on sustainable design, building envelopes (e.g. thermal insulation, windows & doors and insulation glazing), systems for heating, cooling, ventilation, building automation and lighting, as well as prefabricated building elements. In addition, the activities focus on heat and power supply through renewable energies, especially geothermal energy.

The linked activities of the newly launched Energy Export Initiative provide in-depth knowledge and support to exploit the full potential that lies in the Chinese green building sector. In order to do so, a thorough market preparation, recruitment of qualified personnel as well as suitable market strategies and cooperation partners are key factors for success.

As an experienced partner, GIC Greater China supports German companies in this endeavour throughout the coming years, with its access to local stakeholders and building market expertise.

无二的专家、决策者和技术供应商交流与互动的机会。

从项目执行方来讲,德国商会与三家德国咨询公司——德国亚太经济协会, eclareon公司和巴符州经济与科技合作公司紧密合作。除此之外,德国商会还和德国能源署以及德国国际合作组织等机构有多年的项目合作经验,其中包括中德能源对话项目等。

目标市场分析调研报告,两次来华商务代表团以及赴德考察任务,可以把中德的建筑能效领域的决策者召集起来,并获得针对中国市场的建筑节能解决方案的综合信息。



Being responsible for roughly one third of primary energy demand, the Chinese building sector offers great potential for reducing energy consumption

作为占用国家约三分之一的全社会一次性能耗的建筑业具有巨大的减少能源消耗潜力

Source / 图片来源: Torsten Weidemann / pixelio.de

其中的技术重点包括可持续的设计和建筑围护结构(如保温隔热,门窗和绝热玻璃)、制热和制冷系统、通风设备、楼宇自动化、照明以及预制建筑构件。此外,活动重点还包括通过可再生能源供暖供电,尤其是通过地热能。

新的能源出口倡议下的一系列活动可以提供关于中国绿色建筑行业的深入知识和支持。为了挖掘一个市场的潜力,需要在前期阶段就对其市场和合作伙伴进行分析 and 辨别。

德国商会凭借其丰富经验,愿意在未来竭力为德国企业在建筑能效领域提供持续性支持。

Supporting China on its Way to Low Carbon Urbanization

A contribution by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

支持中国城镇化低碳发展之路

来自德国国际合作机构的客邀文章

Looking at Chinese policies for sustainable urbanization, cross-sectoral strategies grow more important. The freshly released central government guideline for urban planning (02/2016) and the New Type Urbanization Plan (2014-2020) are examples in this regard.

In bilateral cooperation the Chinese Ministry of Housing and Urban-Rural Development (MoHURD) and the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) underline this trend in their new Memorandum of Understanding (11/2015) on the "Implementation of the Sino-German Urbanization Partnership".

Responding to the increasing cross-sectoral requirements and to effectively support sustainable urbanization with our political partners GIZ decided to form a cluster of expertise combining its sectors of transport, energy and sustainable urbanization. Below a selection of the cluster's projects is introduced.

Energy efficiency in cities through the renewal of urban quarters

Demonstration projects under Chinese-German technical cooperation in Northern China showed that end-use energy savings of at least 40% can be achieved through adequate building renovations. It has been estimated that in the same area 3.5 billion m² need to be renovated. Provided all is refurbished with the above mentioned quality, savings of 285 billion kWh can be achieved. This is equivalent to an annual reduction of 100 million tons of CO₂-emissions.

The project "Qualification of Key Actors on Energy Efficiency in the Building Sector" (KABEE) compiled seven training modules (can be downloaded on our project website) with German know-how to assist MoHURD in leveraging this huge potential. For instance, one module provides an energy-saving and carbon mitigation methodology for existing residential buildings allowing local decision makers and project planners to understand the considerable savings in carbon emissions, energy consumption and costs that can be achieved through high quality energy efficient retrofits. KABEE is now promoting its training modules in

中国在制定可持续城镇化政策中越来越重视跨部门多行业发展战略,比如说中央最新发布的城市规划指南(2016年2月)以及新型城镇化规划(2014-2020)都很好说明了这一点。中国住房和城乡建设部和德国联邦环境、自然保护、建筑和核安全部在其最新双边合作项目“落实中德城镇化伙伴关系”的谅解备忘录(2015年11月)中也特别强调了这一发展趋势。为顺应日益提高的跨部门多行业发展要求,并有效支持中方合作伙伴的可持续城镇化发展进程,德国国际合作机构专门成立了涵盖交通、能源和可持续城镇化的专业知识咨询小组。以下是该小组相关项目的介绍。

城市区域改造中的建筑节能

在中国北方实施的中德技术合作项目成果显示,大量的建筑节能改造可以实现至少40%终端能源的减少。在北方,有35亿平方米的建筑物需要进行改造。如果全部按照上述示范项目要求的质量进行改造,可以节省2850亿千瓦时的能耗,相当于年均1亿吨二氧化碳的减排量。建筑节能领域关键参与者的能力建设(简称KABEE)运用德国的专业知识已完成了7个培训模块的编写,帮助中国城乡建设部撬动建筑领域的巨大节能潜力。比如说,其中一个模块提出了既有住宅建筑节能减排的方法论,帮助地方决策者和项目规划师理解到高质量的节能改造能够带来碳排放、能耗和成本方面的巨大节约潜力。目前,KABEE正致力于在整个城市区域推广节能改造的培训模块,支持城市层面的综合规划和有效改造过程。



Working group during a training workshop in July 2015
2015年7月培训班工作小组讨论
Source / 图片来源: GIZ

the context of the renovation of entire urban quarters to support cities in integrated planning and effective implementation.

Low carbon cities in Jiangsu province

Jiangsu's 13th Five-Year-Plan (FYP, 2016 to 2020) targets a 45 to 48% reduction in the intensity of carbon emissions relative to 2005. Jiangsu's Development and Reform Commission (JDRC) set favorable political conditions for introducing innovative low-carbon measures. Energy efficiency and renewable energy are aggressively promoted. Now, JDRC is looking for sophisticated low-carbon concepts including decentralized generation of electricity combined with heating and cooling, increased use of waste energy and recycling of valuable waste materials in a circular economy.

The project will familiarize decision-makers in Jiangsu's city networks with the German approach to holistic energy and resource planning in city quarters and industry parks. This can unlock huge energy saving potentials ensuring that buildings and enterprises, and their interconnecting infrastructures, result in cost-effective, carbon neutral or plus energy zones.

The experiences will be disseminated through the Jiangsu Information Center to ensure replication in Jiangsu's municipalities. This will help Jiangsu to achieve its energy-saving and climate change mitigation targets under the 13th FYP and to reach the peak of its GHG emissions well before 2030.

Eco-Cities and Support by EC-Link

China's activities to create eco-cities must be seen as part of its contributions to low-carbon development with the aim to mitigate climate change. The main objective of the EC-Link project is to assist MoHURD in implementing its sustainable low-carbon urbanisation agenda.

The project will support MoHURD in four strategic activities:

- Demonstrating good practice approaches to implement low carbon solutions: Good practice low carbon solutions will be identified and made available. Toolboxes are being developed on the basis of European and Chinese eco-city practices.

江苏省低碳城市发展

江苏省十三五规划(2016-2020)要求在2005年的基础上实现45-48%的减排目标。为此,江苏省发展和改革委员会为创新型低碳措施的引入提供了有利的政策条件,大力推进能效提升和可再生能源利用。目前,江苏省发展和改革委员会正致力于综合型低碳发展理念的开发,包括分布式能源冷热电联产、在循环经济中推广废弃能源利用和废弃物循环使用。



Green Manufacturing Workshop of Liberty Co. Inc., in Jin Tan, Jiangsu focusing on photovoltaics, geothermal heat pumps, water treatment, recycling and steel building framework
江苏利步瑞服装有限公司绿色生产车间(光伏太阳能+地源热泵空调+中水利用+全钢结构等)

Source / 图片来源: GIZ

中德合作项目旨在向江苏省城市网络决策者推广德国在其城市区域和工业园区实施的一体化能源和资源规划途径,以此释放江苏巨大的节能潜力,进而实现建筑、企业及其相关基础设施的成本节约、碳中和甚至是区域产能。

项目成果将通过江苏省信息中心推广至江苏各市县,这将有助于江苏实现其十三五节能减排目标和2030年的温室气体排放峰值目标。



EC-Link assists MoHURD in implementing its sustainable low-carbon urbanisation agenda

中欧生态城项目协助住房和城乡建设部实施其可持续低碳城镇化目标

Source / 图片来源: GIZ

- Creating testing grounds for innovations in the nine sectors covered: compact urban development, clean energy, green buildings, green transportation, water management, solid waste treatment, urban renewal and revitalization, municipal financing, and green industries.
- Improving Chinese Municipalities' capacity to finance appropriate solutions.
- Establishing knowledge networks: The project will demonstrate how strategic objectives are translated at local level and how results are integrated at national level. Results will be shared via training and capacity building events at the local level and gradually published on our project website.

生态城市和中欧生态城项目的支持

中国建设生态城市的努力是其对低碳发展和减缓气候变化所作出贡献的一部分。中欧生态城项目旨在以下四个战略领域协助住房和城乡建设部实施其可持续低碳城镇化目标：(一)展示低碳发展的最佳实践。项目将识别并分享关于低碳规划的最佳实践，并基于欧洲和中国生态城市的实践开发工具箱；(二)作为项目九个领域创新实践基地，包括紧凑城市、清洁能源、绿色建筑、绿色交通、固废处理、水资源管理、市政投融资、城市更新和绿色产业；(三)提高中国城市绿色融资能力；(四)建立知识网络。项目将展示国家战略目标如何在地方付诸实施，同时地方成果如何汇集到国家层面。项目成果将通过培训和地方能力建设活动分享，也将在项目网站上分享。

Event information / 信息提示

BAU Congress China 2016 will take place on July 4-6, 2016 at the China National Convention Center in Beijing. For the first time, due to its popularity, the event will be conducted over the course of three days.

The annual congress with accompanying exhibition focuses on high-quality design, planning and construction. It provides a business-focused and industry-wide platform with real solutions and inspiration to industry professionals in an international setting, tailored to the specific needs of the Chinese market. BAU Congress China 2016 is supported by strong partners, including econet china, Fraunhofer Building Innovation Alliance, ift Rosenheim, DGNB, bauerlag and Archi-Europe Group.

The confirmed speakers include Christoph Ingenhoven, Christoph Reinhart, Hartwig M. Künzel, Ludwig Rongen, Roland Winkler, Song Yehao, Stephan Schütz, Brian Chang, Xie Yuanjian and Zhang Xu.

Free online pre-registration at www.bauchina.com/register Invitation code: EC33

BAU Congress China 2016将于今年7月4-6日在北京国家会议中心再次拉开帷幕，大会及展览将首次延长为3天。作为聚焦高品质建筑设计、规划和建造的商务交流、合作和信息交换平台，BAU Congress China大会既有真材实料的内容又有激发灵感的创意。同期举办的展览会针对中国市场的需求，展示建筑、建材及建筑系统领域的高质量产品及前沿技术。大会及展览将得到德中生态商务平台、弗劳恩霍夫应用研究促进协会建筑创新业务联盟、罗森海姆门窗技术研究院、德国可持续建筑委员会、bauerlag 和 Archi-Europe 等强大合作方的大力支持。

已确认演讲嘉宾包括：Christoph Ingenhoven, Christoph Reinhart, Hartwig M. Künzel, Ludwig Rongen, Roland Winkler, 宋晔皓, Stephan Schütz, 张利, 谢远建, 张旭等。

在线预登记地址 www.bauchina.com/reg_cn 邀请码：EC33

econet china: A Platform for Sino-German Cooperation in Sustainability 德中生态商务平台：中德可持续发展领域合作平台

2015 is recognized as a milestone year for clean technologies. During the course of the year, the United Nations announced the new sustainable development goals for the world. Moreover, the Paris Agreement was adopted, setting a solid foundation for accelerating innovation, commercialization and scaling up of clean technologies. As a result, the world has witnessed a clean revolution in 2015 that has never been seen before. With China being one of the biggest emitters in the world, the Middle Kingdom's transaction and contribution are vital to the success of the global efforts towards a more sustainable and cleaner earth.

Established in 2007, econet has been actively promoting Sino-German exchanges in sustainability. In 2015, econet china continued its role as a consulting institution for German greentech and a collaboration platform to bring together business and government representatives, experts as well as academia and facilitate the Sino-German cooperation in the areas of smart urbanization, energy efficiency and sustainable development in China.

To cater for the diverse inquiries from German and Chinese clients, econet streamlined a new service range in 2015. Besides the long established yearly partnership for strategic positioning for German companies in China, econet developed a new "a la carte" service which enables its team to provide individual support for market intelligence, networking and marketing, business development and project initiation for businesses from China and Germany.

In 2015, econet's branded salons successfully cooperated with China Construction Group No. 8 Engineering Bureau, Shenzhen Design Institute of Building Sciences and East China Architectural Design Group. The networking events provided econet partners with an intense exchange on new developments with leading Chinese industry stakeholders.

Additionally, aiming to support German companies to explore the market in southern China, two roadshow series were jointly organized by the Delegation of German Industry & Commerce Guangzhou and econet china in 2015 in the provinces Guangdong and Fujian. The shows were supported by the German consulate in Guangzhou. As an integral part, Sino-German symposiums were held in Guangzhou and Xiamen.

2015年对于清洁技术发展是具有里程碑意义的年份。这一年，联合国发布了全球新的可持续发展目标，巴黎气候峰会协议的修订为清洁技术行业加快创新、商业化与规模化的步伐奠定了坚实的基础。因此，世界在2015年见证了一场前所未有的清洁革命。作为全球最大的碳排放国家，中国的行动与贡献对于全球实现一个更可持续与清洁的地球的目标有着关键的影响。

自2007年成立以来，econet始终致力于积极推动中德两国在可持续发展领域的交流。在过去的一年中，econet依旧发挥着其作为德国绿色科技咨询与服务机构与合作平台的重要职能，凝聚政、商、学、研各领域的行业专家与项目，助力中德两国在智慧城市、能源效率与可持续发展领域的在华合作。

为了进一步满足来自德国和中国客户的多样化需求，econet在2015年对服务内容进行调整，除了保留多年来为在华的德国企业提供战略市场定位和推广的年度合作伙伴机制以外，econet制定了更灵活和透明的菜单式服务模式，整个团队致力于为中德双方的行业伙伴提供从市场研究、商业网络、市场推广、业务拓展和项目发起等各领域服务。

2015年econet品牌沙龙成功走进中国建设集团第八工程局、深圳建筑科学研究院上海分院、华东建筑设计集团都市建筑设计研究院。这些活动为econet合作企业提供了与大型施工企业和设计院深入交流当前市场发展的机会。



*econet salon at China Construction Group in Shanghai in April 2015
2015年4月econet在中建八局举办技术交流沙龙*

此外，为了更好地支持德国企业开拓中国南方市场，2015年德国商会广州代表处与econet先后在广



Press Conference at Sino-German Green Building Symposium in Xiamen in September 2015
2015年9月中德绿色建筑国际合作论坛新闻发布会在厦门召开

With the event series, regional real estate companies, institutions and local governments were given the chance to exchange ideas on urban development and project realisation with German technical experts. The roadshow also enabled German enterprise representatives to gain an insight into the current state of the local economic and technical status. Meanwhile, German experts presented progressive and future-oriented solutions in the construction industry through case studies. The events also included roundtables as well as arranged project tours. They took place in five different cities throughout the two provinces and reached over 400 participants. The event series aimed to shift the focus from first tier cities to second and third tier cities such as the southern Chinese city of Zhanjiang and the capital of Fujian province, Fuzhou, in order to increase public awareness and business opportunities for environmental friendly solutions in those urban areas.

Meanwhile, econet's regular focus greentech workshop series is running well to encourage discussion on crucial issues and to bring together experts from industry and academia.

Industry Collaborations and Public Projects

Furthermore, econet is always actively engaged in public projects through collaborative activities with key industry partners to facilitate Sino-German cooperation in sustainability.

东与福建两省联合举办了
两场绿色建筑技术路演活动,该系列活动得到了德国驻广州总领事馆的大力支持。活动期间,中德大型研讨在广州与厦门分别举行,当地的开发商、研究机构与政府高层代表借此机会与德国技术专家探讨了在城市发展和项目实践过程中的问题与经验,德国企业代表也得以充分了解了这些地区当前的房地产行业发展形势与各自技术的推广潜力。同时,德国专家通过分享成功案例解读了具有前瞻性的德国解决方案在建筑上的应用,活动还包含了圆桌会议和项目参观活动。两场路演在

跨越两省的五个城市举办邀请了超过400名当地与会者。整个活动将关注的目光从一线城市转移到中国南方城市诸如湛江、福建省省会福州等二、三线城市,提升当地相关市场从业者对绿色建筑理念与技术的意识与认知度,为德国企业创造相应潜在的业务拓展机会。

同时,econet定期举办的“聚焦绿色科技”系列讲座也在持续开展,鼓励并凝聚商界和学术界专家共同探讨行业热点话题。

行业合作与公共项目

econet长期与各领域行业合作伙伴积极合作,共同发起参与项目,推动中德在可持续发展领域的合作。

今年,econet大中华区团队又将在由德国联邦经济与能源部资助的“德国出口倡议计划”项目框架下接待来自德国的3个商务代表团,本次主题将围绕建筑和工业领域能效和可再生能源的利用。届时参团的德国企业所提供的绿色解决方案与主题将涉及并契合中国市场目前正面临的机遇和挑战。

econet与德国可持续建筑委员会(DGNB)合作,作为其在中国的合作伙伴于05月18-20日期间在上海主办为期3天的国际DGNB咨询师培训。该培训将系统化地讲解可持续建筑的理念、全面的评估方法以及详细的标准知识,课程由讲座授课、实地参观、小组

This year, the econet greater china team, supported by the German Federal Ministry for Economic Affairs and Energy (BMWi), is looking forward to welcoming again three German business delegations in the frame of the Energy Export Initiative, focusing on the theme of energy efficiency and utilization of renewable energies in buildings and industry. New green solution providers and topics will be addressed concerning the emerging challenges and opportunities of the Chinese market.

econet also cooperates with the academy of Deutsche Gesellschaft für Nachhaltiges Bauen (DGNB) as a local partner to host the international DGNB consultant training in Shanghai during 18-20 May this year. The course offers general issues of sustainable architecture, comprehensive knowledge of the evaluation methodology, as well as detailed criteria knowledge through lectures, site tours, group discussions and exercises. All trainees will be required to take part in an online exam after the three-day course. The examination provides the certification as a DGNB consultant who will subsequently be recognized as a DGNB auditor, when collecting and submitting real project implementation experiences.

Moreover, econet is invited by Wuppertal Institute to take part in the EU-funded SWITCH-Asia project "Sustainable Building". The overall objective of this action is to scale up sustainable building practices in less developed western China and thus to reduce climate and resource impacts of the building sector and to contribute to sustainable socio-economic growth in China. A series of events will be designated to foster sustainable building practices among mini, small and medium-sized enterprises in the south-western city of Chongqing and Yunnan province with replication potential for western China in the period of 2016 to 2019. The kick-off meeting will be held in Chongqing this April.

As a standing member of the Passive House Alliance (PHA) China, econet has contributed to the working group with a strong network of German academia, experts and solution providers, offered strategic development advices and shared daily management experiences. In 2016, being part of the market-driven mechanism, all the partners are making joint efforts to build up the alliance as an advisory working group for passive building projects by mobilizing expertise and solutions amongst the group. The alliance is now formulating a systematic technical standard for passive buildings in the hot summer and cold winter regions by collecting project data and implementing real projects.

讨论和练习等各种形式组成。所有参加培训学员将在完成3天的课程之后参加在线考试,并获得DGNB咨询师资格认证。所有获得咨询师资格认证人员在累积和提交相关的真实项目实践经验后,可获得DGNB评估师资格认证。

此外,econet受德国乌珀塔尔研究所邀请,参与由欧盟资助的SWITCH-Asia可持续建筑项目,该项目旨在提升可持续建筑项目在西部城市的实践,降低建筑行业对气候与资源的影响,从而有助于实现中国社会与经济可持续发展的目标。项目合作和支持单位将在2016-2019期间,设计一系列可复制的活动和项目来推动可持续建筑在重庆市和云南省的中小微企业中的实施。项目启动会议将于今年4月在重庆举行。

作为中国被动式建筑联盟的常务理事单位,econet积极为工作组提供德国广泛的学术、专家和技术资源,为联盟的战略发展献计献策,分享日常运行方面的经验。所有的合作企业都期望共同努力,整合各成员单位的技术知识和解决方案,将联盟打造成推动中国被动式建筑发展的专业机构。目前联盟正在通过收集和评估已经完工和即将开展的新项目,制定出适合中国夏热冬冷地区的被动式建筑技术标准体系。



econet booth at BAU Congress China 2015 in Beijing
econet组织企业参展在北京举办的2015中国国际建筑科技大会

市场前景与机遇

目前中国经济已转向一个温和的发展阶段,从整体结构调整到社会变迁都面临着许多新的挑战。因此,德国企业在进入中国市场和继续向前发展的进程中也需较从前更多一份谨慎。

德国作为中国绿色转型中重要的合作伙伴以及绿色技术领域的领导者,提升环境的可持续性仍然是中国

Market Prospects and Opportunities

As the Chinese economy shifts to a more moderate growth pace, challenges are emerging at numerous fronts ranging from structural adjustments to changes in the society. As a result, it is more important than ever for German companies to be prudent when entering and moving forward in the Chinese market.

For Germany as a partner for China's green transformation and a leader in the application of green technologies, improving the Chinese environment is a key issue. Based on our experiences in the German and Chinese market, econet expects especially the following areas to be requested by the local market.

- Regarding green solutions for a healthy built environment, the rising public awareness of a healthy living and indoor environment in China offers more business opportunities for interior green solution providers. For instance efficient heating, ventilation and air conditioning systems, air and water treatment and filtration facilities, radiant heating and cooling systems and organic interior building materials face growing market potential.
- In the environmental industry, econet recommends to pay particular attention to the areas of treatment equipment and remote monitoring technologies for air and water pollution as well as solid waste and recycling solutions.
- Meanwhile, refurbishment of public infrastructure and old projects, for example "urban regeneration" has emerged to be a market with potential, driven by the demands from both industry and city authorities. Facing the decline in new projects, some design companies are shifting their focus to old urban areas and public buildings. Restrained by limited land resources and the need to enhance the urban value, city authorities also encourage related projects. As a result, re-positioning of the public space, re-design and reuse of old architecture, factories, industrial parks and restoration of existing buildings may offer new potentials for German urban planning and architectural design companies.

econet china is looking forward to working on these and other strategic areas with all our partners.



Visit of Gunther Adler, State Secretary of BMUB, at econet booth
德国联邦环境、自然保护、建筑和核安全部国务秘书Adler先生参观econet展团

十三五规划中亟待推进的议题, econet期待以下领域将在本地市场获得更多的关注。

- 随着普通民众对健康生活和室内环境重视度的不断提升,室内健康解决方案将有望获得更多的市场机遇,比如高效的采暖、通风制冷系统、对空气与水进行处理与过滤的设备,辐射式采暖与制冷系统,生态有机室内建筑材料。
- 在环保领域, econet建议特别关注针对空气和水污染的远程监测技术与设备, 固体废弃物处理与回收解决方案。
- 与此同时,以城市公共基础设施改建与老项目翻新为方向,“城市更新”也逐渐成为一个新的潜力市场。随着新建项目数量萎缩,一些建筑设计师转而开始关注旧的城市空间与建筑。随着城市土地供给减少,城市政府部门对提升城市价值的需求增大,并对此类项目给予关注和支持。重新定位城市公共空间、重新设计与利用老建筑、厂房和工业园区、既有建筑改造这些领域或许也将为德国建筑规划与设计领域的企业创造新的潜在机会。

我们期待与所有的行业伙伴在这些和其它战略发展领域取得合作!

A Practice-Oriented Approach for Training Sustainability Experts in China

A contribution by Felix Jansen and Kai Zhang, Deutsche Gesellschaft für Nachhaltiges Bauen (DGNB)

贴近实践的可持续建筑专家培训

来自Deutsche Gesellschaft für Nachhaltiges Bauen (DGNB)的Felix Jansen, Kai Zhang的客邀文章

Sustainable building is on the rise all over the world. This is the result of the “World Green Building Trends 2016” study published by the market research organisation Dodge Data & Analytics. It is particularly true for economically strong countries and growing economies. According to the study, China is making especially good progress. Hardly any other market had such a strong three-year growth forecast as China.

The German Sustainable Building Council (DGNB) is one of the international pioneers of the green building movement and has been actively committed since 2007. From buildings to entire districts, over 1,000 projects in more than 20 countries have been awarded the DGNB Certificate in platinum, gold, silver or bronze. Some of these certificates were awarded to projects in China, for example the Passive House Bruck in Changxing and the German Enterprise Centre in Qingdao.

The key to sustainable building goes beyond the projects that are submitted for certification. Trained experts are needed who understand where changes are required in order to ensure that sustainability is more deeply embedded during planning and construction.

With this goal in mind, the DGNB offers a targeted training concept for Chinese experts that enables them to qualify as a DGNB Consultant. Over the course of three days, the participants are taught everything there is to know about the application of the certification system. The training is aimed at all actors involved in the construction process, from the planning and construction to the operation of sustainable buildings or districts. In the design and planning processes, the DGNB Consultant is responsible for the implementation of the DGNB's requirements and priorities.

The three-day training programme focuses on the international DGNB Certification System and the various criteria on which it is based. In a detailed and practice-oriented manner, participants learn about the aspects that need to be observed during the certification process. Real-life examples which directly relate to the criteria illustrate the certification system, preparing

根据市场调查机构Dodge Data & Analytics推出的世界绿建趋势2016报告,可持续建筑将在世界范围内得到迅速的推广。这其中已经具有实力而且又在继续发展的经济体起着尤为重要的作用。在报告中中国所处的位置十分突出。根据其预计,在未来的三年内没有其它的市场可与中国市场的强劲发展相比。

德国可持续建筑委员会(DGNB)自2007年成立以来一直是可持续建筑领域世界范围内的先驱。如今其在20余个国家对1000余个单体建筑和城区项目颁发了不同等级的认证。这些项目中就有中国的布鲁克被动房,青岛中德生态园德企中心等项目。推动可持续建筑发展不仅仅需要对项目的评估,也需要经过培训的可持续建筑专家。这些专家可通过自己的相关知识将建筑的可持续性尽可能紧密地融合于设计和建设过程中。



Passivhaus Bruck in the Chinese Zhejiang province, is the first project to be awarded the DGNB Platinum Certificate in China
布鲁克被动房是国内第一个获得DGNB铂金认证的项目
Source / 图片来源: Peter Ruge Architekten

DGNB也为中国的专业人士提供有针对性的DGNB咨询师培训计划。在为时三天的课程中参与者可获得与认证实践紧密联系的相关知识。培训的内容涉及诸如建筑与城区的规划和设计、建造和运营等在内的所有的建筑过程。通过这样的培训可使DGNB咨询师有能力在规划和设计的实践过程中使DGNB的理念要求和重点得到体现。

在三天的DGNB国际咨询师培训中,学员将对DGNB评估系统的具体评估要求进行学习。详尽和贴近实践

the participants to successfully apply the criteria in their daily work.

The training aims at enabling the participants to apply appropriate strategies to effectively address the impacts and interdependencies between social, economic and ecological sustainability criteria in the planning and construction phases. At the same time they learn to use the DGNB System as a planning tool. As early as in the design phase, they will be able to identify optimisation potential that can improve the performance and quality of the project.

After successfully supervising and submitting their first project for certification, the consultants are then given the status of a DGNB Auditor. The auditor is, so to speak, the certification assistant for the developer. Auditors closely supervise and document the planning and construction processes from the beginning to the end within the framework of the DGNB Certification. The auditor is the interface between the developer and the DGNB in Germany, which is responsible for the final review and classification of a project and carries out the conformity checks.

To date, the DGNB has trained 145 consultants and 21 auditors (information as of spring 2016). The training programmes conducted in Chinese and English have so far been held in Beijing, Shanghai, Qingdao and Guangzhou. Further cities are to follow. Two consultant training programmes with a focus on buildings are planned for April 2016. In autumn 2016, a training programme will be offered that is specifically designed for the certification of districts. The DGNB is supported by a number of local partners that are familiar with the Chinese market and its specific requirements and can tailor the training content to the participants' needs.

The growing number of participants in the training courses confirms the relevance of the Chinese market for the DGNB. By setting up the DGNB China Community during the BAU Congress China in June 2015, the DGNB laid the foundation for the further establishment of the certification system in the country. Since then, numerous pioneers in sustainable building in China have been networking with each other and are working together to spread the DGNB's philosophy of sustainability. The expansion of the DGNB's activities in the area of further training and education is a crucial part of this strategy.

的讲解以及具体工程评估中的实际案例将使学员更直观和全面地掌握认证的要求和过程。培训所要达到的目标是使这些经过培训的专家掌握可持续建筑评估的要领,并将相辅相成而又相互制约的经济环境等建筑可持续性要求灵活地融入设计和建设过程中。同时这些专家也将学到,如何把DGNB系统作为设计的工具,在项目设计之初就可针对其使用表现和质量进行分析并找出优化的可能性。

通过独立完成一个项目的认证, DGNB咨询师可获得DGNB评估师的称号。所谓的DGNB评估师负责为业主方进行项目认证,并在设计和施工的全过程根据DGNB认证要求进行指导和记录。评估师也会与DGNB认证部门进行紧密沟通和联系,成为项目评估的枢纽。DGNB的认证部门负责对认证材料审查和建筑物最终评级的确认。



The German Enterprise Centre in Qingdao is awarded with the DGNB Platinum Certificate

青岛德企中心获得DGNB铂金认证

Source / 图片来源: Sino-German Ecopark Real Estate

至2016年初, DGNB在中国已培训了21个评估师和145个咨询师。在北京、上海、青岛和广州DGNB都以中英双语的形式组织过培训。当然还会有更多的城市正计划于其中。DGNB在16年4月将会进行2次建筑物评估系统的培训, 16年秋将会组织城区评估系统的专门培训。通过在当地的合作伙伴, DGNB可以更好地熟悉中国市场并根据市场的具体情况和要求对培训进行有针对性的修改和调整。

不断增长的培训学员数量更加说明了中国市场对DGNB的重要性。于2015年6月BAU Congress China上成立的专门针对中国市场开发的DGNB中国委员会能够很好地加强DGNB在中国的认知度和影响。已经有不少的中国可持续建筑方面的先驱者正在为DGNB可持续建筑理念在中国的推广进行着共同的努力。更多形式的培训和研修也将成为DGNB市场开发战略中重要的组成部分。

Urban Upgrade – Energy, Buildings and Quality of Life

A contribution by Dirk Schwede, energydesign (Shanghai) Co., Ltd.

城市升级——能源、建筑和生活质量

来自energydesign (上海) 有限公司Dirk Schwede的客邀文章

Looking at cities in China today, it is obvious that a significant transformation is yet to come. In many places the situation is not able to support quality of living of the urban population and the path taken is also not directed towards a sustainable future. Although the objective is clear and the broad directives are implemented in the political agendas, detailed solutions have yet to be developed individually for each situation.

The Competence Centre for Sustainable Building in China (CCSBC) is a GIZ public-private partnership (PPP) project supported by the German Federal Ministry of Economic Cooperation & Development and conveyed by the architecture firm softgrid, the engineering and consulting firm energydesign in Shanghai and LUWOGConsult in Germany. CCSBC was set up with the mission to support the transformation of the built environment in China towards a sustainable future through evidence based analysis and development of successful project cases. Through long praxis in Germany and about 10 years praxis of the partners in China the Competence Centre can utilize project experience and not at last tools and methods for the development of well-reasoned and case-adapted solutions.

One of these methods originally developed and applied for the company-owned building stock of BASF in Germany, is targeting on energy-efficiency and urban upgrade on the scale of city quarters. Based on a systematic portfolio analysis, buildings and building typologies are classified according to their energy performance and functional fitness for an individual upgrade path, such as complete retrofit, revitalisation, adaptive reuse or even demolition and rebuild. In the exercise it is also identified, whether urban functions are better to be provided through new or existing facilities or whether additional infrastructure, such as urban green can improve the environment in terms of micro climate and quality of life. The main function is to direct the attention in urban upgrade projects towards the most effective and meaningful approach to improve the existing building stock through well-reasoned measures based on technical and economic performance analysis. It will support decision mak-

关注今日中国城市的人都能明显感受到，中国的城市将迎来一场巨大的变革。在许多方面，中国城市的现状都不能够保证城市人口的生活质量，而且发展的过程并非通向一个可持续的未来。虽然目标明确，而且多项法令已经在政治议程中得到执行，然而具体的解决方案仍待就各个情况单独研究制定。

中国可持续建筑能力中心 (CCSBC) 是德国国际合作机构下的一个政府企业合作项目。项目得到了德国经济合作和发展部的支持，并由上海softgrid建筑设计咨询公司、energydesign建筑工程咨询公司以及德国LUWOGConsult建筑设计咨询公司共同参与。CCSBC的建立旨在通过成功案例的实证分析和开发，助力中国建筑环境向可持续未来的转变。鉴于合作伙伴在德国长期的和在中国近10年的实践，CCSBC能运用这些项目的经验、工具和方法开发有根据的、具有适应性的解决方案。



Residential quarter in Shanghai - upgrade of existing communities is necessary to secure quality of life under the pressure of conflicting functions

上海某居住小区——功能冲突情况下为保证生活质量，既有社区的升级很有必要

Source / 图片来源: Dirk Schwede

其中一个方法，最初是为巴斯夫公司在德国的自有建筑设计和应用的，正是以城市社区的节能和城市升级为目标的。基于系统的组合分析，根据能耗和功能的契合度，建筑物和建筑类型被分类，并被确定相应的升级路径，如完全改造、复兴再生、适应性再利用或者甚至是拆除和重建。在此实践中也定义了城市的功能是否需要新建公共设施，或者需要额外的公共设施，如城市绿化能够在微气候和生活质量层面上改善环境。主要的功能是把对城市升级项目的关注领向最有效和有意义的方向，从而通过基于技术性能和经济

ers with responsibility for a large amount of building stocks, for instance city mayors and their high- and mid-level administration.

The urban development in China today is characterized by trends such as the ongoing urbanisation and it is overlaid by not less rapid change of urban lifestyles. These changes lead to an exponential increase of energy demand in new and the existing building stock. Since higher comfort demands are emerging, the existing building stock is more and more unfit for these new demands. Also resource consumption is increasing for new buildings, new urban infrastructure and the maintenance of urban functions.

Since these trends are also significant for the economic development and the projected economic growth, the objectives and envisioned qualities of the development are currently not aligned with sustainable development of cities and the urban lifestyle. It seems that the targets of a sustainable development are not universal and need to be identified and developed for each case. It is obvious today that a new discussion on values is needed in order to understand how we want to live in the future and what the most significant functions we need to secure for future generations are.

Energy and many of the functions operated with energy surely will play a significant role in this vision. However, if also for example individual mobility, as one of the main sources of energy consumption and a defining factor for urban space will prospectively have the role assigned to it today is questionable. Individual mobility, its infrastructure and space consumption contribute significantly to the reduction of quality of life in the urban context. On the other hand, efficient and renewable energy generation in the building context through more energy-efficient decentralized energy plants and through solar energy applications, such as solar thermal or photovoltaic systems, will emerge as an essential part of the urban infrastructure.

At the same time energy-efficient and functional revitalisation of the existing building stock is necessary to provide residential space and sufficient functional buildings (schools, offices, hospitals, etc.), which are affordable for low income segments of the society, the aging population and the new urban population. An essential objective is to maintain and to improve the character of existing city quarters, so that the life of the current inhabitants is maintained and gradually improved to support a sustainable future.

性能分析得出的方法来改善既有建筑。这个方法将帮助负责大量既有建筑的决策者,如市长以及中高级别的行政部门。



Different functions of the city, integrated green infrastructure for the community, quality of life and micro climate in the neighbourhood
城市的不同功能, 社区整合绿地设施, 生活质量和住区微气候

Source / 图片来源: Dirk Schwede

今天中国城市发展的特征受到一些趋势的影响,如当下正在进行的城市化。中国城市生活方式的改变和城市化同样迅速,也影响着中国城市的发展。这些变革导致了新建建筑和既有建筑对能源需求的极具上升。由于人们对开始需要更高的舒适度,既有建筑将逐渐无法满足这些新的需求。新建筑、新的城市公共设施以及城市功能的维持对资源的消费也在不断增长。

由于这些趋势对经济的发展和经济增长预测有重要的意义,因此目前城市发展的目标和设想的质量与城市的可持续发展以及城市化的生活方式并不一致。如此看来,可持续发展的目标不是广泛适用的,而是需要根据各个案例的情况被定义和探讨。很明显,今天需要进行一场新的关于价值的讨论,目的是去理解我们希望未来如何生活以及什么是我们保障子孙后代生活最重要的职能。

在这样的视角下,能源和许多受能源支配的职能会理所当然地扮演重要的角色。然而,如果以个人交通为例,也作为一种主要的能源消费和城市空间的一个定义因素,那么个人交通在今天的角色就值得怀疑。个人交通、其公共设施和对空间的需求严重降低了城市背景下的生活质量。另一方面,通过更节能的分布式能源站和对太阳能的利用,如太阳能热水器或是光伏系统,建筑的有效产能会成为城市公共设施的基本组成部分。

与此同时,既有建筑的节能和功能再生是提供居住空间和充足的功能性建筑(学校、办公室、医院等)所必需的,也是社会中低收入群体、老年人口和新城市人口可负担的。一个基本的目标是保持和改善城市现有区块的特征,使现在居民的生活可以得到维持,并且逐渐得到改善,从而帮助实现一个可持续的未来。

Fairs & Events 展会与活动

12th International Conference on Green and Energy-Efficient Building New Technologies and Products Expo
Beijing, China · 30/03/2016 - 31/03/2016
第十二届国际绿色建筑与建筑节能大会暨新技术与产品博览会
北京, 中国 · 2016年3月30日 - 31日
chinagb.net

Clean Energy Expo China 2016
Beijing, China · 29/03/2016 - 31/03/2016
中国国际清洁能源博览会
北京, 中国 · 2016年3月29日 - 31日
cleanenergyexpochina.com

UrbanTec Asia Conference 2016
Beijing, China · 29/05/2016 - 30/05/2016
2016年京交会 “中国国际城市智能化技术与服务大会”
北京, 中国 · 2016年5月29日 - 30日
urbantecasia.com.cn

ISH China & CIHE 2016
China International Trade Fair for Heating, Ventilation, Air-Conditioning, Sanitation & Home Comfort Systems
Beijing, China · 30/05/2016 - 01/06/2016
中国国际供热通风空调、卫浴及舒适家居系统展览会
北京, 中国 · 2016年5月30日 - 6月1日
ishc-cihe.com

BAU Congress China 2016
Beijing, China · 04/07/2016 - 06/07/2016
中国国际建筑科技大会及展览
北京, 中国 · 2016年7月4日 - 6日
bauchina.com

ISH Shanghai & CIHE 2016
China Intl. Trade Fair for Heating, Ventilation & Air-Conditioning
Shanghai, China · 31/08/2016 - 02/09/2016
上海国际供热通风空调、城建设备与技术展览会
上海, 中国 · 2016年8月31日 - 9月2日
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中国节能协会节能服务产业委员会
emca.cn

Alternative Energy 替代能源网
alternative-energy-news.info

China Energy Web 中国能源网
china5e.com

China Greentech Initiative 中国绿色科技
china-greentech.com

China Renewable Energy Society (CRES) 中国可再生能源学会
cres.org.cn

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cnrec.org.cn

German Energy Agency 德国能源署
dena.de

German Federal Ministry for Economic Affairs and Energy
(BMWi) 德国联邦经济和能源部
bmwi.de

Energy Efficiency Export Initiative 能效出口倡议
efficiency-from-germany.info

Renewable Energies Export Initiative 出口计划网
export-erneuerbare.de

Europe-China Clean Energy Centre 中欧清洁能源中心
ec2.org.cn/en

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retech-germany.net

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Chinese Renewable Energy Industries Association (CREIA)
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climatefocus.com

Climate Works Foundation 气候工作基金会
climateworks.org

CO2 Trade 二氧化碳交易
co2-handel.de

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dehst.de

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cdm.unfccc.int

JIKO BMUB 德国联邦环境部 联合履约处
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KfW Carbon Fund 德国复兴信贷银行碳基金
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